



Title:REQUIRED RESISTANCE GENES AND USES THEREOF

Applicant(s): Xinnian Dong, *et al.*

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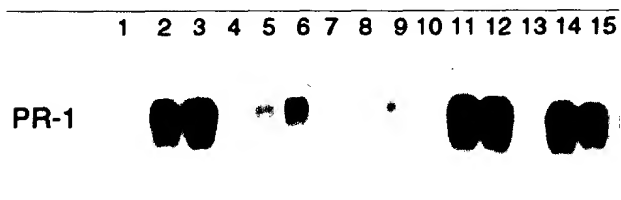


Fig. 2A

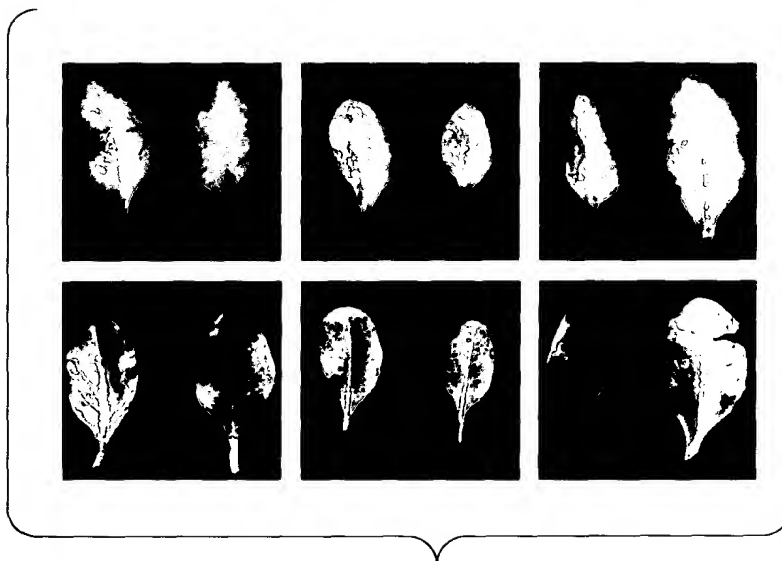


Fig. 2B



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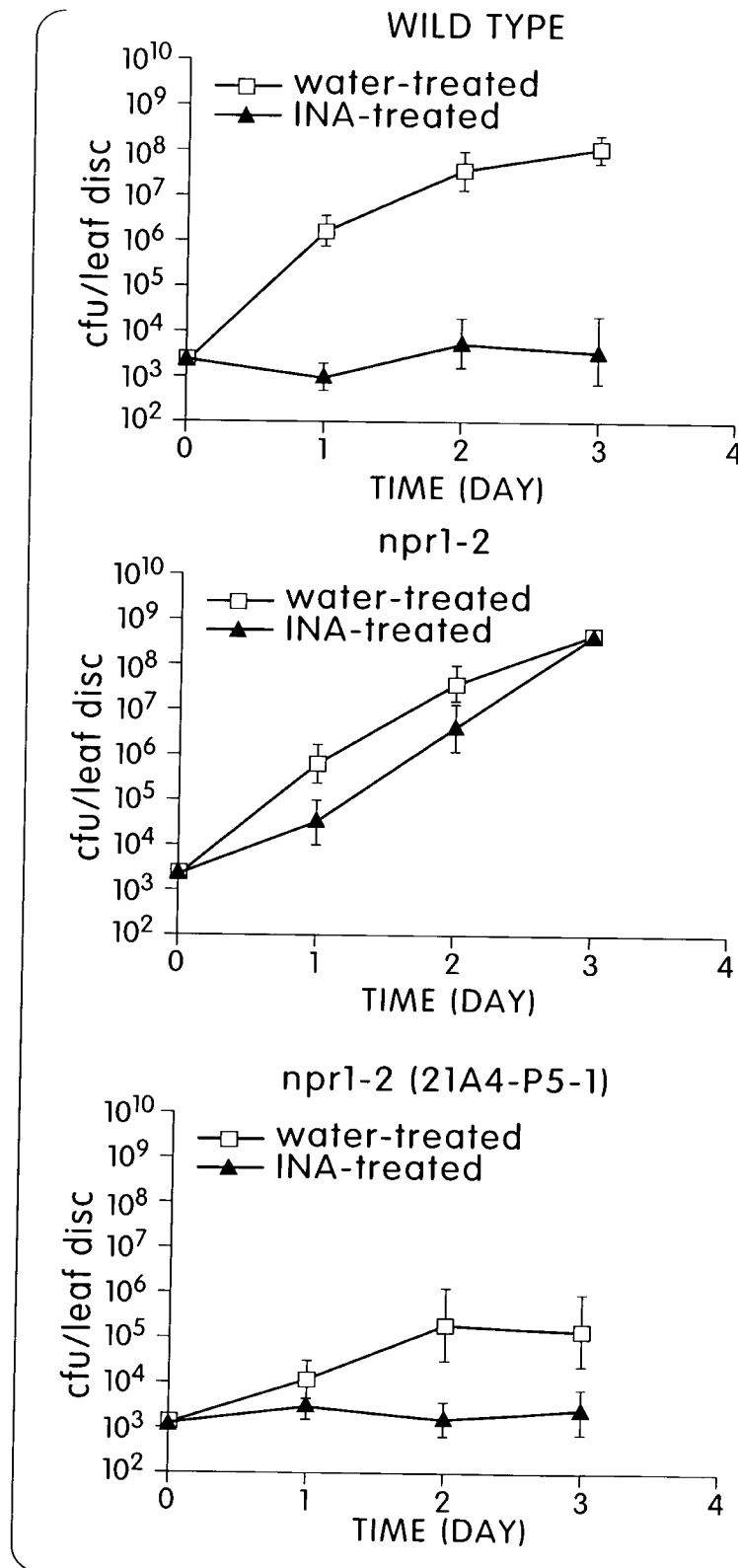


Fig. 2C



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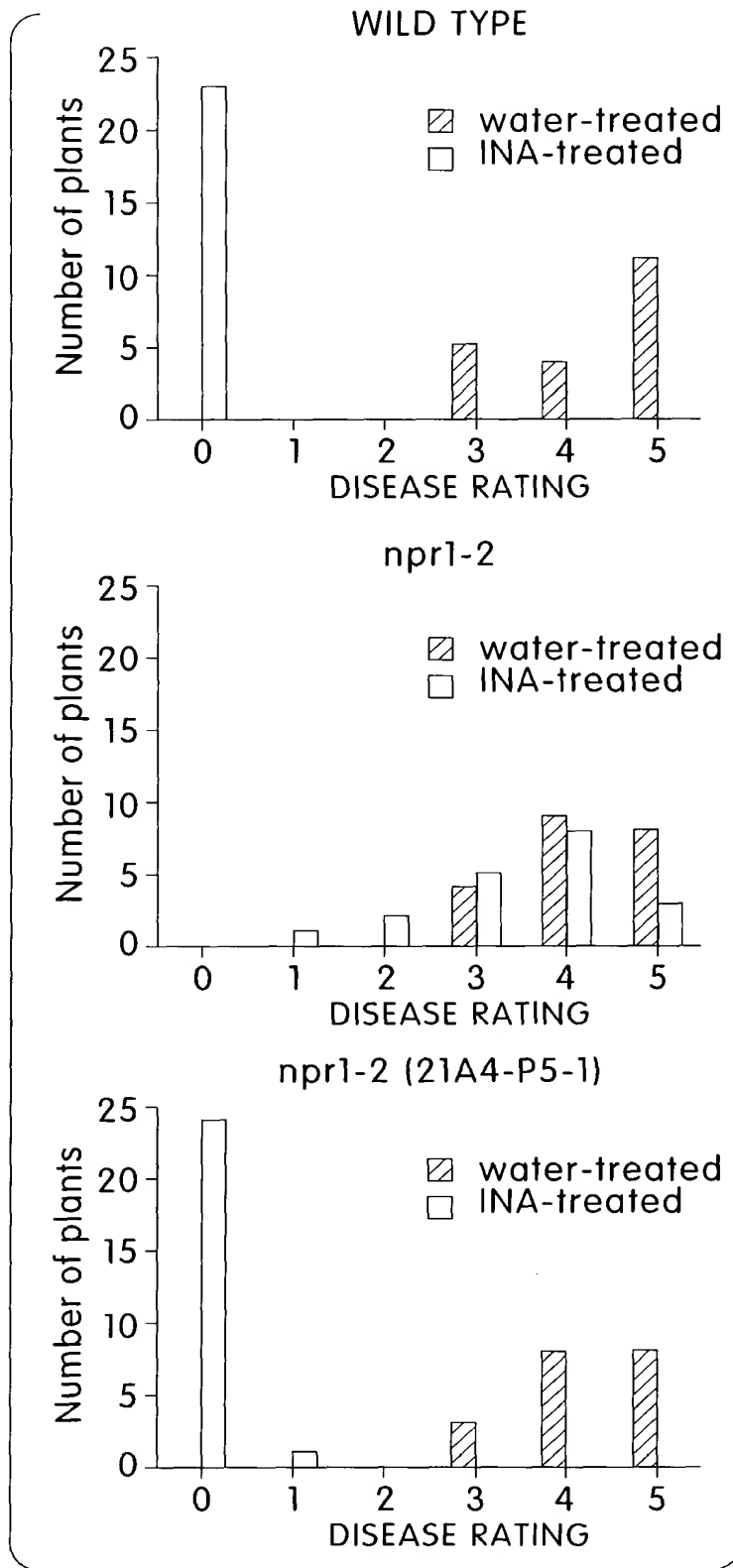


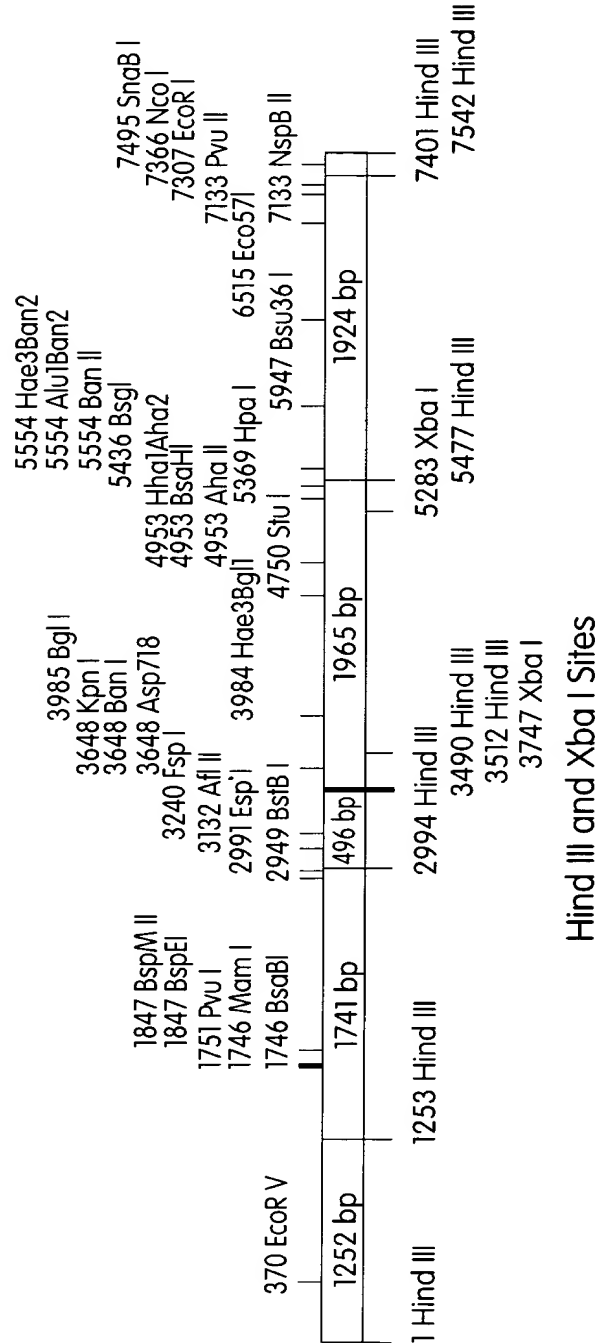
Fig. 2D



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Restriction Map of the NPR1 Locus (7547 bp)

Unique Sites



Hind III and Xba I Sites

Fig. 3



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10 *	20 *	30 *	40 *	50 *
AAGCTTGTGA	TGCAAGTCAT	GGGATATTGC	TTTGTGTAA	GTATACAAAA
TTCGAACACT	ACGTTTCAGTA	CCCTATAACG	AAACACAATT	CATATGTTTT
60 *	70 *	80 *	90 *	100 *
CCATCACGTG	GATACATAGT	CTTCAAACCA	ACCACTAAAC	AGTATCAGGT
GGTAGTGCAC	CTATGTATCA	GAAGTTTGGT	TGGTGATTG	TCATAGTCCA
110 *	120 *	130 *	140 *	150 *
CATACCAAAG	CCAGAAGTGA	AGGGTTGGGA	TATGTCATTG	GGTTTAGCGG
GTATGGTTTC	GGTCTTCACT	TCCCAACCCT	ATACAGTAAC	CCAAATCGCC
160 *	170 *	180 *	190 *	200 *
TAATCGGATT	GAACCCTTTC	CGGTATAAAA	TACAAAGGCT	TTCGCAGTCT
ATTAGCCTAA	CTTGGGAAAG	GCCATATTTT	ATGTTTCCGA	AAGCGTCAGA
210 *	220 *	230 *	240 *	250 *
CGGCGTATGT	GTATGTCTCG	GGGTATCTAC	CATTTGAATC	ACAGAACTTT
GCCGCATACA	CATACAGAGC	CCCATAGATG	GTAAACTTAG	TGTCTTGAAA
260 *	270 *	280 *	290 *	300 *
TATGTGCGAA	GTTTTTCGATT	CTGATTCGTT	TACCTGGAAG	AGATTAGAAA
ATACACGCTT	CAAAAGCTAA	GACTAAGCAA	ATGGACCTTC	TCTAATCTTT
310 *	320 *	330 *	340 *	350 *
TTTGCGTCTA	CCAAAAACAG	ACAGATTAAT	TTTTTCCAAC	CCGATACAAG
AAACGCAGAT	GGTTTTTGTC	TGTCTAATTA	AAAAAGGTTG	GGCTATGTTC
360 *	370 *	380 *	390 *	400 *
TTTCGGGGTT	CTTGCATTGG	ATATCACGGA	ACAACAATGT	GATCCGGTTT
AAAGCCCCAA	GAACGTAACC	TATAGTGCCT	TGTTGTACCA	CTAGGCCAAA
410 *	420 *	430 *	440 *	450 *
TGTCTCAAAA	CCGAAACTTG	GTCCTTCTTC	CATACTCCGA	ACTCTGATGT
ACAGAGTTTT	GGCTTTGAAC	CAGGAAGAAG	GTATGAGGCT	TGAGACTACA
460 *	470 *	480 *	490 *	500 *
TTTCTCAGGA	TTAGTCAGAT	ACGAAGGGAA	GCTAGGTGCT	ATTCGTCAGT
AAAGAGTCCT	AATCAGTCTA	TGCTTCCCTT	CGATCCACGA	TAAGCAGTCA
510 *	520 *	530 *	540 *	550 *
GGACAAACAA	AGATCAAGAA	GATGTTACAG	AGTTATGGGT	TTTAAAGAGC
CCTGTTTGTT	TCTAGTTCTT	CTACAAGTGC	TCAATACCCA	AAATTTCTCG

Fig. 4-1



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560 *	570 *	580 *	590 *	600 *
AGTTTTGAAA TCAAAACTTT	AGTCGTGGGT TCAGCACCCA	TAAAGTGAAA ATTTCACTTT	GATATTAAAA CTATAATTTT	GCATTGGAGT CGTAACCTCA
610 *	620 *	630 *	640 *	650 *
AGATTTGATT TCTAAACTAA	ACGTGGACTC TGCACCTGAG	CAAGCAACGA GTTTCGTTGCT	CGTTGTATTG GCAACATAAC	TTTCGTAGTA AAAGCATCAT
660 *	670 *	680 *	690 *	700 *
GTGATCGTGG CACTAGCACC	TTGCCTCTAC AACGGAGATG	AACATAAACG TTGTATTTGC	CAGAGAAGTT GTCTCTTCAA	GAATTTAGTT CTTAAATCAA
710 *	720 *	730 *	740 *	750 *
TATGCAAAAA ATACGTTTTT	AAGAGGGATC TTCTCCCTAG	TGATTGTTCT ACTAACAAAG	TTCGTTTGTT AAGCAAACAA	TTCCGTTTTG AAGGCAAAAC
760 *	770 *	780 *	790 *	800 *
TTCTGATTAC AAGACTAATG	GAGAGGGTTG CTCTCCCAAC	ATCTGAACGG TAGACTTGCC	AAGAAGCAAC TTCTTCGTTG	GGGCCGACAC CCCGGCTGTG
810 *	820 *	830 *	840 *	850 *
TTTAAAAAAA AAATTTTTTT	AAATAAAAAA TTTATTTTTT	AATGGGCCGA TTACCCGGCT	CAAATGCAAA GTTTACGTTT	CGTAGTTGAC GCATCAACTG
860 *	870 *	880 *	890 *	900 *
AAGGATCTCA TTCCTAGAGT	AGTCTCAAGT TCAGAGTTCA	CTCAATTGGC GAGTTAACCG	TCGCTCATTG AGCGAGTAAC	TGGGGCATAA ACCCCGTATT
910 *	920 *	930 *	940 *	950 *
ATATATCTAG TATATAGATC	TGATGTTTAA ACTACAAATT	TTGTTTTTTA AACAAAAAAT	TAAGGTAAAA ATTCCATTTT	AGGAATATTG TCCTTATAAC
960 *	970 *	980 *	990 *	1000 *
AATTTTGTTT TTAAAACAAA	CTTAGGTTTA GAATCCAAAT	TGTAATAATA ACATTATTAT	CCAAACATTG GGTTTGTAAC	TTTTATGAAT AAAATACTTA
1010 *	1020 *	1030 *	1040 *	1050 *
ATTTAATCTG TAAATTAGAC	ATTTTTTGGC TAAAAAACCG	TAGTTATTTT ATCAATAAAA	ATTATATCAA TAATATAGTT	GGGTTCCCTGT CCCAAGGACA
1060 *	1070 *	1080 *	1090 *	1100 *
TTATAGTTGA AATATCAACT	AAACAGTTAC TTTGTCAATG	TGTATAGAAA ACATATCTTT	ATAGTGTCCT TATCACAGGG	AATTTTCTCT TTAAAAGAGA

Fig. 4-2



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1110 *	1120 *	1130 *	1140 *	1150 *
CTTAAATAAT	ATATTAGTTA	ATAAAAGATA	TTTTAATATA	TTAGATATAC
GAATTTATTA	TATAATCAAT	TATTTTCTAT	AAAATTATAT	AATCTATATG
1160 *	1170 *	1180 *	1190 *	1200 *
AATAATATCT	AAAGCAACAC	ATATTTAGAC	ACAACACGTA	ATATCTTACT
TTATTATAGA	TTTCGTTGTG	TATAAATCTG	TGTTGTGCAT	TATAGAATGA
1210 *	1220 *	1230 *	1240 *	1250 *
ATTGTTTACA	TATATTTATA	GCTTACCAAT	ATAACCCGTA	TCTATGTTTT
TAACAAATGT	ATATAAATAT	CGAATGGTTA	TATTGGGCAT	AGATACAAAA
1260 *	1270 *	1280 *	1290 *	1300 *
ATAAGCTTTT	ATACAATATA	TGTACGGTAT	GCTGTCCACG	TATATATATT
TATTCGAAAA	TATGTTATAT	ACATGCCATA	CGACAGGTGC	ATATATATAA
1310 *	1320 *	1330 *	1340 *	1350 *
CTCCAAAAAA	AACGCATGGT	ACACAAAATT	TATTAAATAT	TTGGCAATTG
GAGGTTTTTT	TTGCGTACCA	TGTGTTTTAA	ATAATTTATA	AACCGTTAAC
1360 *	1370 *	1380 *	1390 *	1400 *
GGTGTTTATC	TAAAGTTTAT	CACAATATTT	ATCAACTATA	ATAGATGGTA
CCACAAATAG	ATTTCAAATA	GTGTTATAAA	TAGTTGATAT	TATCTACCAT
1410 *	1420 *	1430 *	1440 *	1450 *
GAAGATAAAA	AAATTATATC	AGATTGATTC	AATTAAATTT	TATAATATAT
CTTCTATTTT	TTTAATATAG	TCTAACTAAG	TTAATTTAAA	ATATTATATA
1460 *	1470 *	1480 *	1490 *	1500 *
CATTTTAAAA	AATTAATTAA	AAGAAAACCTA	TTTCATAAAA	TTGTTCAAAA
GTAAAATTTT	TTAATTAATT	TTCTTTTGAT	AAAGTATTTT	AACAAGTTTT
1510 *	1520 *	1530 *	1540 *	1550 *
GATAATTAGT	AAAATTAATT	AAATATGTGA	TGCTATTGAA	TTATAGAGAG
CTATTAATCA	TTTTAATTAA	TTTATACACT	ACGATAACTT	AATATCTCTC
1560 *	1570 *	1580 *	1590 *	1600 *
TTATTGTAAA	TTTACTTAAA	ATCATACAAA	TCTTATCCTA	ATTTAACTTA
AATAACATTT	AAATGAATTT	TAGTATGTTT	AGAATAGGAT	TAAATTGAAT
1610 *	1620 *	1630 *	1640 *	1650 *
TCATTTAAGA	AATACAAAAG	TAAAAAACGC	GGAAAGCAAT	AATTTATTTA
AGTAAATTCT	TTATGTTTTT	ATTTTTTGCG	CCTTTCGTTA	TTAAATAAAT

Fig. 4-3



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1660 *	1670 *	1680 *	1690 *	1700 *
CCTTATTATA	ACTCCTATAT	AAAGTACTCT	GTTTATTCAA	CATAATCTTA
GGAATAATAT	TGAGGATATA	TTTCATGAGA	CAAATAAGTT	GTATTAGAAT
1710 *	1720 *	1730 *	1740 *	1750 *
CGTTGTTGTA	TTCATAGGCA	TCTTTAACCT	ATCTTTTCAT	TTTCTGATCT
GCAACAACAT	AAGTATCCGT	AGAAATTGGA	TAGAAAAGTA	AAAGACTAGA
1760 *	1770 *	1780 *	1790 *	1800 *
CGATCGTTTT	CGATCCAACA	AAATGAGTCT	ACCGGTGAGG	AACCAAGAGG
GCTAGCAAAA	GCTAGGTTGT	TTTACTCAGA	TGGCCACTCC	TTGGTTCTCC
1810 *	1820 *	1830 *	1840 *	1850 *
TGATTATGCA	GATTCCTTCT	TCTTCTCAGT	TTCCAGCAAC	ATCGAGTCCG
ACTAATACGT	CTAAGGAAGA	AGAAGAGTCA	AAGGTCGTTG	TAGCTCAGGC
1860 *	1870 *	1880 *	1890 *	1900 *
GAAAACACCA	ATCAAGTGAA	GGATGAGCCA	AATTTGTTTA	GACGTGTTAT
CTTTTGTGGT	TAGTTCACCT	CCTACTCGGT	TTAAACAAAT	CTGCACAATA
1910 *	1920 *	1930 *	1940 *	1950 *
GAATTTGCTT	TTACGTCGTA	GTTATTGAAA	AAGCTGATTT	ATCGCATGAT
CTTAAACGAA	AATGCAGCAT	CAATAACTTT	TTCGACTAAA	TAGCGTACTA
1960 *	1970 *	1980 *	1990 *	2000 *
TCAGAACGAG	AAGTTGAAGG	CAAATAACTA	AAGAAGTCTT	TTATATGTAT
AGTCTTGCTC	TTCAACTTCC	GTTTATTGAT	TTCTTCAGAA	AATATACATA
2010 *	2020 *	2030 *	2040 *	2050 *
ACAATAATTG	TTTTTAAATC	AAATCCTAAT	TAAAAAATA	TATTCATTAT
TGTTATTAAC	AAAAATTTAG	TTTAGGATTA	ATTTTTTTTAT	ATAAGTAATA
2060 *	2070 *	2080 *	2090 *	2100 *
GACTTTCATG	TTTTTAATGT	AATTTATTCC	TATATCTATA	ATGATTTTTG
CTGAAAGTAC	AAAAATTACA	TTAAATAAGG	ATATAGATAT	TACTAAAAAC
2110 *	2120 *	2130 *	2140 *	2150 *
TTGTGAAGAG	CGTTTTTCATT	TGCTATAGAA	CAAGGAGAAT	AGTTCCAGGA
AACACTTCTC	GCAAAAGTAA	ACGATATCTT	GTTCCCTCTTA	TCAAGGTCCT

Fig. 4-4



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2160 *	2170 *	2180 *	2190 *	2200 *
AATATTCGAC TTATAAGCTG	TTGATTTAAT AACTAAATTA	TATAGTGTA ATATCACATT	ACATGCTGAA TGTACGACTT	CACTGAAAAT GTGACTTTTA
2210 *	2220 *	2230 *	2240 *	2250 *
TACTTTTTCA ATGAAAAAGT	ATAAACGAAA TATTTGCTTT	AATATAATAT TTATATTATA	ACATTACAAA TGTAATGTTT	ACTTATGTGA TGAATACACT
2260 *	2270 *	2280 *	2290 *	2300 *
ATAAAGCATG TATTTTCGTAC	AGACTTAATA TCTGAATTAT	TACGTTCCCT ATGCAAGGGA	TTATCATTTT AATAGTAAAA	ACTTCAAAGA TGAAGTTTCT
2310 *	2320 *	2330 *	2340 *	2350 *
AAATAAACAG TTTATTTGTC	AAATGTA TTTACATTGA	TTCACATGTA AAGTGTACAT	AATCTAATTC TTAGATTAA	TTAAATTTAA AATTTAAATT
2360 *	2370 *	2380 *	2390 *	2400 *
AAAATAATAT TTTTATTATA	TTATATATTT AATATATAAA	ATATGAAAA TATACTTTTA	AACGAACCGG TTGCTTGGCC	ATGAAAAATA TACTTTTTAT
2410 *	2420 *	2430 *	2440 *	2450 *
AATTTTATAT TTAAAATATA	ATTTATATCA TAAATATAGT	TCTCCAAATC AGAGGTTTAG	TAGTTTGGTT ATCAAACCAA	CAGGGGCTTA GTCCCCGAAT
2460 *	2470 *	2480 *	2490 *	2500 *
CCGAACCGGA GGCTTGGCCT	TTGAACTTCT AACTTGAAGA	CATATACAAA GTATATGTTT	AATTAGCAAC TTAATCGTTG	ACAAAATGTC TGTTTTACAG
2510 *	2520 *	2530 *	2540 *	2550 *
TCCGGTATAA AGGCCATATT	ATACTAACAT TATGATTGTA	TTATAACCCG AATATTGGGC	AACCGGTTTA TTGGCCAAAT	GCTTCCTGTT CGAAGGACAA
2560 *	2570 *	2580 *	2590 *	2600 *
ATATCTTTTT TATAGAAAAA	AAAAAAGATC TTTTTCTAG	TCTGACAAAG AGACTGTTC	ATTCCTTTCC TAAGGAAAGG	TGGAAATTTA ACCTTTAAAT
2610 *	2620 *	2630 *	2640 *	2650 *
CCGGTTTTGG GGCCAAAACC	TGAAATGTAA ACTTTACATT	ACCGTGGGAC TGGCACCCTG	GAGGATGCTT CTCCTACGAA	CTTCATATCT GAAGTATAGA
2660 *	2670 *	2680 *	2690 *	2700 *
CACCACCACT GTGGTGGTGA	CTCGTTGACT GAGCAACTGA	GGACTTGGCT CCTGAACCGA	CTGCTCGTCA GACGAGCAGT	ATGGTTATCT TACCAATAGA

Fig. 4-5



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2710 *	2720 *	2730 *	2740 *	2750 *
TCGATCTTAA	ACCAAATCCA	GTTGATAAGG	TCTCTTCGTT	GATTAGCAGA
AGCTAGAATT	TGGTTTAGGT	CAACTATTCC	AGAGAAGCAA	CTAATCGTCT
2760 *	2770 *	2780 *	2790 *	2800 *
GATCTCTTTA	ATTTGTGAAT	TTCAATTTCAT	CGGAACCTGT	TGATGGACAC
CTAGAGAAAT	TAAACACTTA	AAGTTAAGTA	GCCTTGGACA	ACTACCTGTG
2810 *	2820 *	2830 *	2840 *	2850 *
CACCATTGAT	GGATTTCGCCG	ATTCTTATGA	AATCAGCAGC	ACTAGTTTCG
GTGGTAACTA	CCTAAGCGGC	TAAGAATACT	TTAGTCGTCG	TGATCAAAGC
2860 *	2870 *	2880 *	2890 *	2900 *
TCGCTACCGA	TAACACCGAC	TCCTCTATTG	TTTATCTGGC	CGCCGAACAA
AGCGATGGCT	ATTGTGGCTG	AGGAGATAAC	AAATAGACCG	GCGGCTTGTT
2910 *	2920 *	2930 *	2940 *	2950 *
GTACTCACCG	GACCTGATGT	ATCTGCTCTG	CAATTGCTCT	CCAACAGCTT
CATGAGTGGC	CTGGACTACA	TAGACGAGAC	GTTAACGAGA	GGTTGTCGAA
2960 *	2970 *	2980 *	2990 *	3000 *
CGAATCCGTC	TTTGACTCGC	CGGATGATTT	CTACAGCGAC	GCTAAGCTTG
GCTTAGGCAG	AAACTGAGCG	GCCTACTAAA	GATGTCGCTG	CGATTCTGAAC
3010 *	3020 *	3030 *	3040 *	3050 *
TTCTCTCCGA	CGGCCGGGAA	GTTTCTTTCC	ACCGGTGCGT	TTTGTCTAGCG
AAGAGAGGCT	GCCGGCCCTT	CAAAGAAAGG	TGGCCACGCA	AAACAGTCGC
3060 *	3070 *	3080 *	3090 *	3100 *
AGAAGCTCTT	TCTTCAAGAG	CGCTTTAGCC	GCCGCTAAGA	AGGAGAAAGA
TCTTCGAGAA	AGAAGTTCTC	GCGAAATCGG	CGGCGATTCT	TCCTCTTTCT
3110 *	3120 *	3130 *	3140 *	3150 *
CTCCAACAAC	ACCGCCGCCG	TGAAGCTCGA	GCTTAAGGAG	ATTGCCAAGG
GAGGTTGTTG	TGGCGGCGGC	ACTTCGAGCT	CGAATTCCTC	TAACGGTTCC
3160 *	3170 *	3180 *	3190 *	3200 *
ATTACGAAGT	CGGTTTCGAT	TCGGTTGTGA	CTGTTTTGGC	TTATGTTTAC
TAATGCTTCA	GCCAAAGCTA	AGCCAACACT	GACAAAACCG	AATACAAATG
3210 *	3220 *	3230 *	3240 *	3250 *
AGCAGCAGAG	TGAGACCGCC	GCCTAAAGGA	GTTTCTGAAT	GCGCAGACGA
TCGTCGTCTC	ACTCTGGCGG	CGGATTTCTT	CAAAGACTTA	CGCGTCTGCT

Fig. 4-6



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3260 *	3270 *	3280 *	3290 *	3300 *
GAATTGCTGC	CACGTGGCTT	GCCGGCCGGC	GGTGGATTTC	ATGTTGGAGG
CTTAACGACG	GTGCACCGAA	CGGCCGGCCG	CCACCTAAAG	TACAACCTCC
3310 *	3320 *	3330 *	3340 *	3350 *
TTCTCTATTT	GGCTTTCATC	TTCAAGATCC	CTGAATTAAT	TACTCTCTAT
AAGAGATAAA	CCGAAAGTAG	AAGTTCCTAGG	GACTTAATTA	ATGAGAGATA
3360 *	3370 *	3380 *	3390 *	3400 *
CAGGTAAAAC	ACCATCTGCA	TTAAGCTATG	GTTACACATT	CATGAATATG
GTCCATTTTG	TGGTAGACGT	AATTCGATAC	CAATGTGTAA	GTACTIONTATAC
3410 *	3420 *	3430 *	3440 *	3450 *
TTCTTACTTG	AGTACTTGTA	TTTGTATTTT	AGAGGCACTT	ATTGGACGTT
AAGAATGAAC	TCATGAACAT	AAACATAAAG	TCTCCGTGAA	TAACCTGCAA
3460 *	3470 *	3480 *	3490 *	3500 *
GTAGACAAAG	TTGTTATAGA	GGACACATTG	GTTATACTCA	AGCTTGCTAA
CATCTGTTTC	AACAATATCT	CCTGTGTAAC	CAATATGAGT	TCGAACGATT
3510 *	3520 *	3530 *	3540 *	3550 *
TATATGTGGT	AAAGCTTGTA	TGAAGCTATT	GGATAGATGT	AAAGAGATTA
ATATACACCA	TTTCGAACAT	ACTTCGATAA	CCTATCTACA	TTTCTCTAAT
3560 *	3570 *	3580 *	3590 *	3600 *
TTGTCAAGTC	TAATGTAGAT	ATGGTTAGTC	TTGAAAAGTC	ATTGCCGGAA
AACAGTTCAG	ATTACATCTA	TACCAATCAG	AACTTTTCAG	TAACGGCCTT
3610 *	3620 *	3630 *	3640 *	3650 *
GAGCTTGTTA	AAGAGATAAT	TGATAGACGT	AAAGAGCTTG	GTTTGGAGGT
CTCGAACAAT	TTCTCTATTA	ACTATCTGCA	TTTCTCGAAC	CAAACCTCCA
3660 *	3670 *	3680 *	3690 *	3700 *
ACCTAAAGTA	AAGAAACATG	TCTCGAATGT	ACATAAGGCA	CTTGACTCGG
TGGATTTTCAT	TTCTTTGTAC	AGAGCTTACA	TGTATTCCGT	GAACCTGAGCC
3710 *	3720 *	3730 *	3740 *	3750 *
ATGATATTGA	GTTAGTCAAG	TTGCTTTTGA	AAGAGGATCA	CACCAATCTA
TACTATAACT	CAATCAGTTC	AACGAAACT	TTCTCCTAGT	GTGGTTAGAT
3760 *	3770 *	3780 *	3790 *	3800 *
GATGATGCGT	GTGCTCTTCA	TTTCGCTGTT	GCATATTGCA	ATGTGAAGAC
CTACTACGCA	CACGAGAAGT	AAAGCGACAA	CGTATAACGT	TACACTTCTG

Fig. 4-7



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3810 *	3820 *	3830 *	3840 *	3850 *
CGCAACAGAT GCGTTGTCTA	CTTTTAAAC GAAAATTTTG	TTGATCTTGC AACTAGAACG	CGATGTCAAC GCTACAGTTG	CATAGGAATC GTATCCTTAG
3860 *	3870 *	3880 *	3890 *	3900 *
CGAGGGGATA GCTCCCCCTAT	TACGGTGCTT ATGCCACGAA	CATGTTGCTG GTACAACGAC	CGATGCGGAA GCTACGCCTT	GGAGCCACAA CCTCGGTGTT
3910 *	3920 *	3930 *	3940 *	3950 *
TTGATACTAT AACTATGATA	CTCTATTGGA GAGATAACCT	AAAAGGTGCA TTTTCCACGT	AGTGCATCAG TCACGTAGTC	AAGCAACTTT TTCGTTGAAA
3960 *	3970 *	3980 *	3990 *	4000 *
GGAAGGTAGA CCTTCCATCT	ACCGCACTCA TGGCGTGAGT	TGATCGCAAA ACTAGCGTTT	ACAAGCCACT TGTTTCGGTGA	ATGGCGGTTG TACCGCCAAC
4010 *	4020 *	4030 *	4040 *	4050 *
AATGTAATAA TTACATTATT	TATCCCGGAG ATAGGGCCTC	CAATGCAAGC GTTACGTTTC	ATTCTCTCAA TAAGAGAGTT	AGGCCGACTA TCCGGCTGAT
4060 *	4070 *	4080 *	4090 *	4100 *
TGTGTAGAAA ACACATCTTT	TACTAGAGCA ATGATCTCGT	AGAAGACAAA TCTTCTGTTT	CGAGAACAAA GCTCTTGTTT	TTCCTAGAGA AAGGATCTCT
4110 *	4120 *	4130 *	4140 *	4150 *
TGTTCCCTCCC ACAAGGAGGG	TCTTTTGCAG AGAAAACGTC	TGGCGGCCGA ACCGCCGGCT	TGAATTGAAG ACTTAACTTC	ATGACGCTGC TACTGCGACG
4160 *	4170 *	4180 *	4190 *	4200 *
TCGATCTTGA AGCTAGAACT	AAATAGAGGT TTTATCTCCA	ATCTATCAAG TAGATAGTTC	TCTTATTTCT AGAATAAAGA	TATATGTTTG ATATACAAAC
4210 *	4220 *	4230 *	4240 *	4250 *
AATTAAATTT TTAATTTAAA	ATGTCCTCTC TACAGGAGAG	TATTAGGAAA ATAATCCTTT	CTGAGTGAAC GACTCACTTG	TAATGATAAC ATTACTATTG
4260 *	4270 *	4280 *	4290 *	4300 *
TATTCTTTGT ATAAGAAACA	GTCGTCCACT CAGCAGGTGA	GTTTAGTTGC CAAATCAACG	ACTTGCTCAA TGAACGAGTT	CGTCTTTTTTC GCAGAAAAAG
4310 *	4320 *	4330 *	4340 *	4350 *
CAACGGAAGC GTTGCCTTCG	ACAAGCTGCA TGTTTCGACGT	ATGGAGATCG TACCTCTAGC	CCGAAATGAA GGCTTTACTT	GGGAACATGT CCCTTGATACA

Fig. 4-8



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4360 *	4370 *	4380 *	4390 *	4400 *
GAGTTCATAG CTCAAGTATC	TGACTAGCCT ACTGATCGGA	CGAGCCTGAC GCTCGGACTG	CGTCTCACTG GCAGAGTGAC	GTACGAAGAG CATGCTTCTC
4410 *	4420 *	4430 *	4440 *	4450 *
AACATCACCG TTGTAGTGGC	GGTGTAAGA CCACATTTCT	TAGCACCTTT ATCGTGGA	CAGAATCCTA GTCTTAGGAT	GAAGAGCATC CTTCTCGTAG
4460 *	4470 *	4480 *	4490 *	4500 *
AAAGTAGACT TTTCATCTGA	AAAAGCGCTT TTTTCGCGAA	TCTAAAACCG AGATTTTGGC	GTATGGATTC CATACCTAAG	TCACCCACTT AGTGGGTGAA
4510 *	4520 *	4530 *	4540 *	4550 *
CATCGGACTC GTAGCCTGAG	CTTATCACAA GAATAGTGT	AAAACAAAAC TTTGTGTTTG	TAAATGATCT ATTTACTAGA	TTAAACATGG AATTTGTACC
4560 *	4570 *	4580 *	4590 *	4600 *
TTTTGTTACT AAAACAATGA	TGCTGTCTGA ACGACAGACT	CCTTGTTTTT GGAACAAAA	TTATCATCAG AATAGTAGTC	TGGAACCTCGG ACCTTGAGCC
4610 *	4620 *	4630 *	4640 *	4650 *
GAAACGATTC CTTTGCTAAG	TTCCCGCGCT AAGGGCGCGA	GTTCCGGCAGT CAAGCCGTCA	GCTCGACCAG CGAGCTGGTC	ATTATGAACT TAATACTTGA
4660 *	4670 *	4680 *	4690 *	4700 *
GTGAGGACTT CACTCCTGAA	GACTCAACTG CTGAGTTGAC	GCTTGCGGAG CGAACGCCTC	AAGACGACAC TTCTGCTGTG	TGCTGAAGAA ACGACTTCTT
4710 *	4720 *	4730 *	4740 *	4750 *
ACGACTACAA TGCTGATGTT	AAGAAGCAAA TTCTTCGTTT	GGTACATGGA CCATGTACCT	AATACAAGAG TTATGTTCTC	ACACTAAAGA TGTGATTTCT
4760 *	4770 *	4780 *	4790 *	4800 *
AGGCCTTTAG TCCGGAAATC	TGAGGACAAT ACTCCTGTTA	TTGGAATTAG AACCTTAATC	GAAATTCGTC CTTTAAGCAG	CCTGACAGAT GGACTGTCTA
4810 *	4820 *	4830 *	4840 *	4850 *
TCGACTTCTT AGCTGAAGAA	CCACATCGAA GGTGTAGCTT	ATCAACCGGT TAGTTGGCCA	GGAAAGAGGT CCTTTCTCCA	CTAACCGTAA GATTGGCATT

Fig. 4-9



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4860 *	4870 *	4880 *	4890 *	4900 *
ACTCTCTCAT TGAGAGAGTA	CGTCGTCGGT GCAGCAGCCA	GAGACTCTTG CTCTGAGAAC	CCTCTTAGTG GGAGAATCAC	TAATTTTTCG ATTAAAAACG
4910 *	4920 *	4930 *	4940 *	4950 *
TGTACCATAT ACATGGTATA	AATTCTGTTT TTAAGACAAA	TCATGATGAC AGTACTACTG	TGTAAGTGT ACATTGACAA	TATGTCTATC ATACAGATAG
4960 *	4970 *	4980 *	4990 *	5000 *
GTTGGCGTCA CAACCGCAGT	TATAGTTTCG ATATCAAAGC	CTCTTCGTTT GAGAAGCAAA	TGCATCCTGT ACGTAGGACA	GTATTATTGC CATAATAACG
5010 *	5020 *	5030 *	5040 *	5050 *
TGCAGGTGTG ACGTCCACAC	CTTCAAACAA GAAGTTTGTT	ATGTTGTAAC TACAACATTG	AATTTGAACC TTAAACTTGG	AATGGTATAC TTACCATATG
5060 *	5070 *	5080 *	5090 *	5100 *
AGATTTGTAA TCTAAACATT	TATATATTTA ATATATAAAT	TGTACATCAA ACATGTAGTT	CAATAACCCA GTTATTGGGT	TGATGGTGT ACTACCACAA
5110 *	5120 *	5130 *	5140 *	5150 *
ACAGAGTTGC TGTCTCAACG	TAGAATCAAA ATCTTAGTTT	GTGTGAAATA CACACTTTAT	ATGTCAAATT TACAGTTTAA	GTTTCATCTGT CAAGTAGACA
5160 *	5170 *	5180 *	5190 *	5200 *
TGGATATTTT ACCTATAAAA	CCACCAAGAA GGTGGTTCTT	CCAAAAGAAT GGTTTTCTTA	ATTCAAGTTC TAAGTTCAAG	CCTGAACTTC GGACTTGAAG
5210 *	5220 *	5230 *	5240 *	5250 *
TGGCAACATT ACCGTTGTAA	CATGTTATAT GTACAATATA	GTATCTTCCT CATAGAAGGA	AATCTTCCT TTAAGAAGGA	TTAACCTTTT AATTGGAAAA
5260 *	5270 *	5280 *	5290 *	5300 *
GTAAGTCGAA CATTGAGCTT	TTACACAGCA AATGTGTCGT	AGTTAGTTTC TCAATCAAAG	AGGTCTAGAG TCCAGATCTC	ATAAGAGAAC TATTCTCTTG
5310 *	5320 *	5330 *	5340 *	5350 *
ACTGAGTGGG TGACTCACCC	CGTGTAAGGT GCACATTCCA	GCATTCTCCT CGTAAGAGGA	AGTCAGCTCC TCAGTCGAGG	ATTGCATCCA TAACGTAGGT
5360 *	5370 *	5380 *	5390 *	5400 *
ACATTTGTGA TGTAACACT	ATGACACAAG TACTGTGTTT	TTAACAATCC AATTGTTAGG	TTTGCAACAT AAACGTGGTA	TTCTGGGTGC AAGACCCACG

Fig. 4-10



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5410 *	5420 *	5430 *	5440 *	5450 *
ATACATGGAA	ACTTCTTCGA	TTGAAACTTC	CCACATGTGC	AGGTGCGTTC
TATGTACCTT	TGAAGAAGCT	AACCTTTGAAG	GGTGTACACG	TCCACGCAAG
5460 *	5470 *	5480 *	5490 *	5500 *
GCTGTCACTG	ATAGACCAAG	AGACTGAAAG	CTTTCACAAA	TTGCCCTCAA
CGACAGTGAC	TATCTGGTTC	TCTGACTTTC	GAAAGTGTTT	AACGGGAGTT
5510 *	5520 *	5530 *	5540 *	5550 *
ATCTTCTGTT	TCTATCGTCA	TGACTCCATA	TCTCCGACCA	CTGGTCATGA
TAGAAGACAA	AGATAGCAGT	ACTGAGGTAT	AGAGGCTGGT	GACCAGTACT
5560 *	5570 *	5580 *	5590 *	5600 *
GCCAGAGCCC	ACTGATTTTG	AGGGAATTGG	GCTAACCATT	TCCGAGCTTC
CGGTCTCGGG	TGACTAAAC	TCCCTTAACC	CGATTGGTAA	AGGCTCGAAG
5610 *	5620 *	5630 *	5640 *	5650 *
TGAGTCCTTC	TTTTTGATGT	CCTTTATGTA	GGAATCAAAT	TCTTCCTTCT
ACTCAGGAAG	AAAACTACA	GGAAATACAT	CCTTAGTTTA	AGAAGGAAGA
5660 *	5670 *	5680 *	5690 *	5700 *
GACTTGTTGGA	TCCAGCCTGC	TTCACAAGGC	TCACCAGGTT	GTAGTCTCCA
CTGAACACCT	AGGTCGGACG	AAGTGTTCCG	AGTGGTCCAA	CATCAGAGGT
5710 *	5720 *	5730 *	5740 *	5750 *
AAAATATCAT	GGAATTGTAA	GCAAAAACAA	TCCAGACAGA	ACCTGTGATA
TTTTATAGTA	CCTTAACATT	CGTTTTTGT	AGGTCTGTCT	TGGACACTAT
5760 *	5770 *	5780 *	5790 *	5800 *
GACCCAAGGT	TCTTGCCACA	GTGATCCGGG	TTCGTTAATA	ACAGCAACTA
CTGGGTTC	AGAACGGTGT	CACTAGGCC	AAGCAATTAT	TGTCGTTGAT
5810 *	5820 *	5830 *	5840 *	5850 *
TGTCCGGGTG	AGGACTGGAG	ACGAAGCAAA	CGTCTTTCCT	TTGTGTTACC
ACAGGCCAC	TCCTGACCTC	TGCTTCGTTT	GCAGAAAGGA	AACACAATGG
5860 *	5870 *	5880 *	5890 *	5900 *
TTCTCTCTGA	TATTAGTGAG	AAACCAACGC	CAACTATCAG	TGGACACTTC
AAGAGAGACT	ATAATCACTC	TTTGGTTCG	GTTGATAGTC	ACCTGTGAAG
5910 *	5920 *	5930 *	5940 *	5950 *
TTTGGTAAGC	GGAAAGCAAG	CGGGAAAAAC	AATCATCAGC	GTCGAGTCCT
AAACCATTCTG	CCTTTCGTTT	GCCCTTTTTG	TTAGTAGTCG	CAGCTCAGGA

Fig. 4-11



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5960 *	5970 *	5980 *	5990 *	6000 *
GAGGAAAATC	ATCAATTTCA	TAGGGGTACT	TGCCGTTCAA	GTCTTTTGAA
CTCCTTTTAG	TAGTTAAAGT	ATCCCCATGA	ACGGCAAGTT	CAGAAAACCTT
6010 *	6020 *	6030 *	6040 *	6050 *
TCCACTATGA	TCAGAGGTCT	ACAGTGTTGA	AACCCTTCAA	TGGACTGTGG
AGGTGATACT	AGTCTCCAGA	TGTCACAACT	TTGGGAAGTT	ACCTGACACC
6060 *	6070 *	6080 *	6090 *	6100 *
AAACGCCCAA	AACGCGCCAC	CGAAGGATGC	AAATTCAGGA	TTAGGGAAAA
TTTGCGGGTT	TTGCGCGGTG	GCTTCCTACG	TTTAAGTCCT	AATCCCTTTT
6110 *	6120 *	6130 *	6140 *	6150 *
GCTCATATTG	CAGTCCACAA	GTAGCCCATT	AGATGAGTGA	AATGCAGCCA
CGAGTATAAC	GTCAGGTGTT	CATCGGGTAA	TCTACTCACT	TTACGTCGGT
6160 *	6170 *	6180 *	6190 *	6200 *
ATTAGTTTAG	GCAATACTCT	GAAACTCTGA	TCTTTGATTA	CTTCCTGTTC
TAATCAAATC	CGTTATGAGA	CTTTGAGACT	AGAAACTAAT	GAAGGACAAG
6210 *	6220 *	6230 *	6240 *	6250 *
TGCTGCCCCG	AGCTTTGAAG	TTTTAAGCAT	GTCACCAAAC	TTTTCAACTC
ACGACGGGCG	TCGAAACTTC	AAAATTCGTA	CAGTGTTTGT	AAAAGTTGAG
6260 *	6270 *	6280 *	6290 *	6300 *
TGCTGTTAGA	GTGGGTTGTA	CCCTGATCAG	ACACTCAATC	TCTTCTGCTG
ACGACAATCT	CACCCAACAT	GGGACTAGTC	TGTGAGTTAG	AGAAGACGAC
6310 *	6320 *	6330 *	6340 *	6350 *
CAAATTACAA	GTTGAAGTTT	TCCGGCTTAA	TAGAACAACA	AGTATGTGGA
GTTTAATGTT	CAACTTCAA	AGGCCGAATT	ATCTTGTTGT	TCATACACCT
6360 *	6370 *	6380 *	6390 *	6400 *
CCAACTACAC	TTAGTTATCT	TAACAAGTCC	ATGTTCTTCT	ATTCAATCTG
GGTTGATGTG	AATCAATAGA	ATTGTTTCAAG	TACAAGAAGA	TAAGTTAGAC
6410 *	6420 *	6430 *	6440 *	6450 *
CCCGACGCGA	CCAATTGCAT	TTCCATCTGA	TGCATTTAAA	CGTATACTCG
GGGCTGCGCT	GGTTAACGTA	AAGGTAGACT	ACGTAAATTT	GCATATGAGC
6460 *	6470 *	6480 *	6490 *	6500 *
TCCTTCTCAA	TCTCTTGTA	TACACACTTT	TGCTGCCCTC	TAATGGAACA
AGGAAGAGTT	AGAGAACATG	ATGTGTGAAA	ACGACGGGAG	ATTACCTTGT

Fig. 4-12



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6510 *	6520 *	6530 *	6540 *	6550 *
CCAGTCCACC	GCCTTCTTCA	GCTCATCCCT	ATCTTTAAAA	CACAACCCTA
GGTCAGGTGG	CGGAAGAAGT	CGAGTAGGGA	TAGAAATTTT	GTGTTGGGAT
6560 *	6570 *	6580 *	6590 *	6600 *
CACGCAATTC	ATGATCATCA	ATCCACAAAC	TAGACAAAGT	ACACTGTTTT
GTGCGTTAAG	TACTAGTAGT	TAGGTGTTTG	ATCTGTTTCA	TGTGACAAAA
6610 *	6620 *	6630 *	6640 *	6650 *
GAAGCACTCG	AATCAACAAC	ACCTTTACTT	AATAAGCACG	CATACGGTAA
CTTCGTGAGC	TTAGTTGTTG	TGGAAATGAA	TTATTCGTGC	GTATGCCATT
6660 *	6670 *	6680 *	6690 *	6700 *
TACCTCTAAG	CCTGGCACAT	TCAAACCTTG	TGTGCATCAT	CTGAACCCGA
ATGGAGATTC	GGACCGTGTA	AGTTTGGAAC	ACACGTAGTA	GACTTGGGCT
6710 *	6720 *	6730 *	6740 *	6750 *
GTTTTTATCC	GTTATTTCTC	CATCCCCACC	TCCACGAGTG	CTACCATTTT
CAAAAATAGG	CAATAAAGAG	GTAGGGGTGG	AGGTGCTCAC	GATGGTAAAG
6760 *	6770 *	6780 *	6790 *	6800 *
CGAAGTCAGA	ATTTTCCTCG	TCTTCAATCC	ACCCGTTACT	GTTACCCACT
GCTTCAGTCT	TAAAAGGAGC	AGAAGTTAGG	TGGGCAATGA	CAATGGGTGA
6810 *	6820 *	6830 *	6840 *	6850 *
CCCTGAACCT	CTAAACCATT	ATCTCTCTCT	ACTTTCACAG	ATGCATGTGA
GGGACTTGGA	GATTTGGTAA	TAGAGAGAGA	TGAAAGTGTC	TACGTACACT
6860 *	6870 *	6880 *	6890 *	6900 *
CACATAATCA	GTAGCTTCTT	GGGGTTGTTG	CGTCCTCTGT	GTATTGAGG
GTGTATTAGT	CATCGAAGAA	CCCCAACAAC	GCAGGAGACA	CATAAGCTCC
6910 *	6920 *	6930 *	6940 *	6950 *
AACTAGCGGG	ATATTCTATT	ACGGATGAAC	AAGCAGCATG	ATCAGTAACA
TTGATCGCCC	TATAAGATAA	TGCCTACTTG	TTCGTCGTAC	TAGTCATTGT
6960 *	6970 *	6980 *	6990 *	7000 *
TTATCAGATG	TCGATTTTAC	TTCCAAATAC	AACTCCACAT	TTCTTATAGA
AATAGTCTAC	AGCTAAAGTG	AAGGTTTATG	TTGAGGTGTA	AAGAATATCT
7010 *	7020 *	7030 *	7040 *	7050 *
AGGATGATAA	CTTGGAACCT	CAAGCATAGT	CTCCAAACTA	GTGTCGTTCA
TCCTACTATT	GAACCTTGAA	GTTTCGTATCA	GAGGTTTGAT	CACAGCAAGT

Fig. 4-13



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7060 *	7070 *	7080 *	7090 *	7100 *
CTACATGAAG GATGTACTTC	AAGTAGATAG TTCATCTATC	ATAAAGAGAT TATTTCTCTA	CCGGTGAAAC GGCCACTTTG	AACTACAGGA TTGATGTCCT
7110 *	7120 *	7130 *	7140 *	7150 *
TACTTACCAA ATGAATGGTT	AATATATTGA TTATATAACT	ACACTGATTT TGTGACTAAA	CTGCAGCTGC GACGTCGACG	AATCCAAAAA TTAGGTTTTT
7160 *	7170 *	7180 *	7190 *	7200 *
TTGGATAAAG AACCTATTTC	ACCATTCAAC TGGTAAGTTG	AATGTACTTA TTACATGAAT	ACGCAGTCTT TGCGTCAGAA	TTGCCTAACC AACGGATTGG
7210 *	7220 *	7230 *	7240 *	7250 *
TTGACCGTTT AACTGGCAAA	TAGGAGTGGA ATCCTCACCT	TCCTTCATAG AGGAAGTATC	TAAACACCAT ATTTGTGGTA	CAGGACCATA GTCCTGGTAT
7260 *	7270 *	7280 *	7290 *	7300 *
CTTGGTAGAA GAACCATCTT	CCTTTCTCTC GGAAAGAGAG	AAGGTTTCCA TTCCAAAGGT	TCGCCATGAC AGCGGTACTG	CATAACAGTC GTATTGTCAG
7310 *	7320 *	7330 *	7340 *	7350 *
CTGCAGTGAA GACGTCACCT	TTCTAAGAAA AAGATTCTTT	AATGTAAAAA TTACATTTTT	ATTTTGGCCT TAAAACCGGA	AAACTCATAA TTTGAGTATT
7360 *	7370 *	7380 *	7390 *	7400 *
TTCTTAACAT AAGAATTGTA	ACGAAACCAT TGCTTTGGTA	GGAGAACTCC CCTCTTGAGG	ATGTCTAAAA TACAGATTTT	AATAAAGGCT TTATTTCCGA
7410 *	7420 *	7430 *	7440 *	7450 *
AAAGCTTTTT TTTCGAAAAA	GGCGACAGAA CCGCTGTCTT	GCAGATAAAT CGTCTATTTA	CCATTCAAAA GGTAAGTTTT	CACATAAACT GTGTATTTGA
7460 *	7470 *	7480 *	7490 *	7500 *
CTAAACAATA GATTTGTTAT	AACAGTGATA TTGTCACTAT	CTCAATACTA GAGTTATGAT	AGACTTGTA TCTGAACATT	AGGTCTACGT TCCAGATGCA
7510 *	7520 *	7530 *	7540 *	
AACTCAAAAC TTGAGTTTTG	TGGAGAATTG ACCTCTTAAC	TCAGATCGGG AGTCTAGCCC	TGTGGCTAGT ACACCGATCA	AGAAGCTT TCTTCGAA

Fig. 4-14



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10	20	30	40	50
*	*	*	*	*
TCGATCTTTA	ACCAAATCCA	GTTGATAAGG	TCTCTTCGTT	GATTAGCAGA
AGCTAGAAAT	TGGTTTtaggt	CAACTATTCC	AGAGAAGCAA	CTAATCGTCT
60	70	80	90	100
*	*	*	*	*
GATCTCTTTA	ATTTGTGAAT	TTCAATTTCAT	CGGAACCTGT	TGATGGACAC
CTAGAGAAAT	TAAACACTTA	AAGTTAAGTA	GCCTTGGACA	ACTACCTGTG
				M D T>
110	120	130	140	150
*	*	*	*	*
CACCATTGAT	GGATTCGCCG	ATTCTTATGA	AATCAGCAGC	ACTAGTTTTCG
GTGGTAACTA	CCTAAGCGGC	TAAGAATACT	TTAGTCGTCG	TGATCAAAGC
T I D	G F A	D S Y E	I S S	T S F>
160	170	180	190	200
*	*	*	*	*
TCGCTACCGA	TAACACCGAC	TCCTCTATTG	TTTATCTGGC	CGCCGAACAA
AGCGATGGCT	ATTGTGGCTG	AGGAGATAAC	AAATAGACCG	GCGGCTTGTT
V A T D	N T D	S S I	V Y L A	A E Q>
210	220	230	240	250
*	*	*	*	*
GTACTCACCG	GACCTGATGT	ATCTGCTCTG	CAATTGCTCT	CCAACAGCTT
CATGAGTGGC	CTGGACTACA	TAGACGAGAC	GTTAACGAGA	GGTTGTGCGAA
V L T	G P D V	S A L	Q L L	S N S F>
260	270	280	290	300
*	*	*	*	*
CGAATCCGTC	TTTGACTIONG	CGGATGATTT	CTACAGCGAC	GCTAAGCTTG
GCTTAGGCAG	AACTGAGCG	GCCTACTAAA	GATGTCGCTG	CGATTGGAAC
E S V	F D S	P D D F	Y S D	A K L>
310	320	330	340	350
*	*	*	*	*
TTCTCTCCGA	CGGCCGGGAA	GTTTCTTTCC	ACCGGTGCGT	TTTGTCAGCG
AAGAGAGGCT	GCCGGCCCTT	CAAAGAAAGG	TGGCCACGCA	AAACAGTCGC
V L S D	G R E	V S F	H R C V	L S A>
360	370	380	390	400
*	*	*	*	*
AGAAGCTCTT	TCTTCAAGAG	CGCTTTAGCC	GCCGCTAAGA	AGGAGAAAGA
TCTTCGAGAA	AGAAGTTCTC	GCGAAATCGG	CGGCGATTCT	TCCTCTTTCT
R S S	F F K S	A L A	A A K	K E K D>
410	420	430	440	450
*	*	*	*	*
CTCCAACAAC	ACCGCCGCCG	TGAAGCTCGA	GCTTAAGGAG	ATTGCCAAGG
GAGGTTGTTG	TGGCGGCGGC	ACTTCGAGCT	CGAATTCCTC	TAACGGTTCC
S N N	T A A	V K L E	L K E	I A K>

Fig. 5-1



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460	470	480	490	500
*	*	*	*	*
ATTACGAAGT	CGGTTTCGAT	TCGGTTGTGA	CTGTTTTGGC	TTATGTTTAC
TAATGCTTCA	GCCAAAGCTA	AGCCAACACT	GACAAAACCG	AATACAAATG
D Y E V	G F D	S V V	T V L A	Y V Y>
510	520	530	540	550
*	*	*	*	*
AGCAGCAGAG	TGAGACCGCC	GCCTAAAGGA	GTTTCTGAAT	GCGCAGACGA
TCGTCGTCTC	ACTCTGGCGG	CGGATTTCTT	CAAAGACTTA	CGCGTCTGCT
S S R	V R P P	P K G	V S E	C A D E>
560	570	580	590	600
*	*	*	*	*
GAATTGCTGC	CACGTGGCTT	GCCGGCCGGC	GGTGGATTTT	ATGTTGGAGG
CTTAACGACG	GTGCACCGAA	CGGCCGGCCG	CCACCTAAAG	TACAACCTCC
N C C	H V A	C R P A	V D F	M L E>
610	620	630	640	650
*	*	*	*	*
TTCTCTATTT	GGCTTTCATC	TTCAAGATCC	CTGAATTAAT	TACTCTCTAT
AAGAGATAAA	CCGAAAGTAG	AAGTTCTAGG	GACTTAATTA	ATGAGAGATA
V L Y L	A F I	F K I	P E L I	T L Y>
660	670	680	690	700
*	*	*	*	*
CAGAGGCACT	TATTGGACGT	TGTAGACAAA	GTTGTTATAG	AGGACACATT
GTCTCCGTGA	ATAACCTGCA	ACATCTGTTT	CAACAATATC	TCCTGTGTAA
Q R H	L L D V	V D K	V V I	E D T L>
710	720	730	740	750
*	*	*	*	*
GGTTATACTC	AAGCTTGCTA	ATATATGTGG	TAAAGCTTGT	ATGAAGCTAT
CCAATATGAG	TTCGAACGAT	TATATACACC	ATTCGAACA	TACTTCGATA
V I L	K L A	N I C G	K A C	M K L>
760	770	780	790	800
*	*	*	*	*
TGGATAGATG	TAAAGAGATT	ATTGTCAAGT	CTAATGTAGA	TATGGTTAGT
ACCTATCTAC	ATTTCTCTAA	TAACAGTTCA	GATTACATCT	ATACCAATCA
L D R C	K E I	I V K	S N V D	M V S>
810	820	830	840	850
*	*	*	*	*
CTTGAAAAGT	CATTGCCGGA	AGAGCTTGTT	AAAGAGATAA	TTGATAGACG
GAACCTTTTCA	GTAACGGCCT	TCTCGAACAA	TTTCTCTATT	AACCTATCTGC
L E K	S L P E	E L V	K E I	I D R R>
860	870	880	890	900
*	*	*	*	*
TAAAGAGCTT	GGTTTGGAGG	TACCTAAAGT	AAAGAAACAT	GTCTCGAATG
ATTTCTCGAA	CCAAACCTCC	ATGGATTTCA	TTTCTTTGTA	CAGAGCTTAC
K E L	G L E	V P K V	K K H	V S N>

Fig. 5-2



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910 *	920 *	930 *	940 *	950 *
TACATAAGGC	ACTTGACTCG	GATGATATTG	AGTTAGTCAA	GTTGCTTTTG
ATGTATTCCG	TGAACTGAGC	CTACTATAAC	TCAATCAGTT	CAACGAAAAC
V H K A	L D S	D D I	E L V K	L L L>
960 *	970 *	980 *	990 *	1000 *
AAAGAGGATC	ACACCAATCT	AGATGATGCG	TGTGCTCTTC	ATTTTCGCTGT
TTTCTCCTAG	TGTGGTTAGA	TCTACTACGC	ACACGAGAAG	TAAAGCGACA
K E D	H T N L	D D A	C A L	H F A V>
1010 *	1020 *	1030 *	1040 *	1050 *
TGCATATTGC	AATGTGAAGA	CCGCAACAGA	TCTTTTAAAA	CTTGATCTTG
ACGTATAACG	TTACACTTCT	GGCGTTGTCT	AGAAAATTTT	GAACTAGAAC
A Y C	N V K	T A T D	L L K	L D L>
1060 *	1070 *	1080 *	1090 *	1100 *
CCGATGTCAA	CCATAGGAAT	CCGAGGGGAT	ATACGGTGCT	TCATGTTGCT
GGCTACAGTT	GGTATCCTTA	GGCTCCCCTA	TATGCCACGA	AGTACAACGA
A D V N	H R N	P R G	Y T V L	H V A>
1110 *	1120 *	1130 *	1140 *	1150 *
GCGATGCGGA	AGGAGCCACA	ATTGATACTA	TCTCTATTGG	AAAAAGGTGC
CGCTACGCCT	TCCTCGGTGT	TAACATATGAT	AGAGATAACC	TTTTTCCACG
A M R	K E P Q	L I L	S L L	E K G A>
1160 *	1170 *	1180 *	1190 *	1200 *
AAGTGCATCA	GAAGCAACTT	TGGAAGGTAG	AACCGCACTC	ATGATCGCAA
TTCACGTAGT	CTTCGTTGAA	ACCTTCCATC	TTGGCGTGAG	TACTAGCGTT
S A S	E A T	L E G R	T A L	M I A>
1210 *	1220 *	1230 *	1240 *	1250 *
AACAAGCCAC	TATGGCGGTT	GAATGTAATA	ATATCCCGGA	GCAATGCAAG
TTGTTCGGTG	ATACCGCCAA	CTTACATTAT	TATAGGGCCT	CGTTACGTTT
K Q A T	M A V	E C N	N I P E	Q C K>
1260 *	1270 *	1280 *	1290 *	1300 *
CATTCTCTCA	AAGGCCGACT	ATGTGTAGAA	ATACTAGAGC	AAGAAGACAA
GTAAGAGAGT	TTCCGGCTGA	TACACATCTT	TATGATCTCG	TTCTTCTGTT
H S L	K G R L	C V E	I L E	Q E D K>
1310 *	1320 *	1330 *	1340 *	1350 *
ACGAGAACAA	ATTCCTAGAG	ATGTTCTCTC	CTCTTTTGCA	GTGGCGGCCG
TGCTCTTGTT	TAAGGATCTC	TACAAGGAGG	GAGAAAACGT	CACCGCCGGC
R E Q	I P R	D V P P	S F A	V A A>

Fig. 5-3



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1360 * ATGAATTGAA TACTTAACTT D E L K	1370 * GATGACGCTG CTACTGCGAC M T L	1380 * CTCGATCTTG GAGCTAGAAC L D L	1390 * AAAATAGAGT TTTTATCTCA E N R V	1400 * TGCACTTGCT ACGTGAACGA A L A>
1410 * CAACGTCTTT GTTGCAGAAA Q R L	1420 * TTCCAACGGA AAGGTTGCCT F P T E	1430 * AGCACAAGCT TCGTGTTTCA A Q A	1440 * GCAATGGAGA CGTTACCTCT A M E	1450 * TCGCCGAAAT AGCGGCTTTA I A E M>
1460 * GAAGGGAACA CTTCCCTTGT K G T	1470 * TGTGAGTTCA ACACTCAAGT C E F	1480 * TAGTGACTAG ATCACTGATC I V T S	1490 * CCTCGAGCCT GGAGCTCGGA L E P	1500 * GACCGTCTCA CTGGCAGAGT D R L>
1510 * CTGGTACGAA GACCATGCTT T G T K	1520 * GAGAACATCA CTCTTGTAGT R T S	1530 * CCGGGTGTAA GGCCACATT P G V	1540 * AGATAGCACC TCTATCGTGG K I A P	1550 * TTTCAGAATC AAAGTCTTAG F R I>
1560 * CTAGAAGAGC GATCTTCTCG L E E	1570 * ATCAAAGTAG TAGTTTCATC H Q S R	1580 * ACTAAAAGCG TGATTTTCGC L K A	1590 * CTTTCTAAAA GAAAGATTTT L S K	1600 * CCGTGGAACT GGCACCTTGA T V E L>
1610 * CGGGAAACGA GCCCTTTGCT G K R	1620 * TTCTTCCCGC AAGAAGGGCG F F P	1630 * GCTGTTTCGGC CGACAAGCCG R C S A	1640 * AGTGCTCGAC TCACGAGCTG V L D	1650 * CAGATTATGA GTCTAATACT Q I M>
1660 * ACTGTGAGGA TGACACTCCT N C E D	1670 * CTTGACTCAA GAAGTGAAGT L T Q	1680 * CTGGCTTGCG GACCGAACGC L A C	1690 * GAGAAGACGA CTCTTCTGCT G E D D	1700 * CACTGCTGAG GTGACGACTC T A E>
1710 * AAACGACTAC TTTGCTGATG K R L	1720 * AAAAGAAGCA TTTTCTTCGT Q K K Q	1730 * AAGGTACATG TTCCATGTAC R Y M	1740 * GAAATACAAG CTTTATGTTT E I Q	1750 * AGACACTAAA TCTGTGATTT E T L K>
1760 * GAAGGCCTTT CTTCCGGAAA K A F	1770 * AGTGAGGACA TCACTCCTGT S E D	1780 * ATTTGGAATT TAAACCTTAA N L E L	1790 * AGGAAATTCTG TCCTTTAAGC G N S	1800 * TCCCTGACAG AGGGACTGTC S L T>

Fig. 5-4



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1810	1820	1830	1840	1850
*	*	*	*	*
ATTCGACTTC	TTCCACATCG	AAATCAACCG	GTGGAAAGAG	GTCTAACCGT
TAAGCTGAAG	AAGGTGTAGC	TTTAGTTGGC	CACCTTTCTC	CAGATTGGCA
D S T S	S T S	K S T	G G K R	S N R>
1860	1870	1880	1890	1900
*	*	*	*	*
AAACTCTCTC	ATCGTCGTCG	GTGAGACTCT	TGCCTCTTAG	TGTAATTTTT
TTTGAGAGAG	TAGCAGCAGC	CACTCTGAGA	ACGGAGAATC	ACATTAAAAA
K L S	H R R R	*>		
1910	1920	1930	1940	1950
*	*	*	*	*
GCTGTACCAT	ATAATTCTGT	TTTCATGATG	ACTGTAAGTG	TTTATGTCTA
CGACATGGTA	TATTAAGACA	AAAGTACTAC	TGACATTGAC	AAATACAGAT
1960	1970	1980	1990	2000
*	*	*	*	*
TCGTTGGCGT	CATATAGTTT	CGCTCTTCGT	TTTGCATCCT	GTGTATTATT
AGCAACCGCA	GTATATCAAA	GCGAGAAGCA	AAACGTAGGA	CACATAATAA
2010	2020	2030	2040	2050
*	*	*	*	*
GCTGCAGGTG	TGCTTCAAAC	AAATGTTGTA	ACAATTTGAA	CCAATGGTAT
CGACGTCCAC	ACGAAGTTTG	TTTACAACAT	TGTTAAACTT	GGTTACCATA
2060	2070	2080	2090	2100
*	*	*	*	*
ACAGATTTGT	AATATATATT	TATGTACATC	AACAATAAAA	AAAAAAAAAA
TGTCTAAACA	TTATATATAA	ATACATGTAG	TTGTTATTTT	TTTTTTTTTT
AAAA				
TTTT				

Fig. 5-5



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NPR1 (323) **NHRNPRGYTVLHVAAAMRKPEQLILSLLEKGGASASEATLEGR**TALMIAKQ (371)
N + GYT LH AA + +I LL+ AS +E T+ G TAL IA++
ankyrin 3 (740) **NAKTKNGYTAHQAAQQGH**THIINVLLQNNASPNELTVNGNTALAIARR (788)

NPR1 (262) **KVKKHVSNNVKALDSDDDIELVKLLKED** (289)
K K +S +H A D + V+LL+ +
ankyrin 3 (313) **KTKNGLSPLH**MATQGDHLNCVQLLSRN (340)

Fig. 6A

1st repeat (265) **KHVSNNVKALDSDDDIELVKLLKED**HTNLLDAC (297)
2nd repeat (294) **DDACALHF**AVAYCNVKTATD**LLKLLDL**ADVNRN (326)
3rd repeat (328) **RGYTVLHVAA**MRKEPQLILSLLEK**GAS**ASEATL (360)
4th repeat (361) **EGR**TALMIAKQATMAVECN**NIPEQCKH**SLKGRL (393)

ANK consensus
(Michaely and Bennett) **G TPLHLAAR GHVEVVKLLLD GADVNA TK**
A I SQ NNLDIAEV K NPD D
V K T M R Q SI N
E

(Bork) **t otLHhAh tt thht LLt t t**

Fig. 6B



Title:REQUIRED RESISTANCE GENES AND USES
THEREOF

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10	20	30	40	50
*	*	*	*	*
GTGACTTTCT	AACTATGGCT	GAAATTGCAG	AACGAAAAAG	ACTTTCCATT
CACTGAAAGA	TTGATACCGA	CTTTAACGTC	TTGCTTTTTTC	TGAAAGGTAA
60	70	80	90	100
*	*	*	*	*
TTTCACTTGA	ATGAAACCCA	AAATGGAAAT	CTATCTCTCT	TCTTCTTCTC
AAAGTGAAGT	TACTTTGGGT	TTTACCTTTA	GATAGAGAGA	AGAAGAAGAG
110	120	130	140	150
*	*	*	*	*
TTTTACTACC	TCCATTTCCA	TGGCTTTCCC	TCCTCTACCT	TCCCTAGCTC
AAAATGATGG	AGGTAAAGGT	ACCGAAAGGG	AGGAGATGGA	AGGGATCGAG
160	170	180	190	200
*	*	*	*	*
TTTTCAATTT	CTAGAATATT	CTTTTCTTAG	TCTGTAATTA	TCTATAGCTC
AAAAGTTAAA	GATCTTATAA	GAAAAGAATC	AGACATTAAT	AGATATCGAG
210	220	230	240	250
*	*	*	*	*
AATTTCTAAG	ACAGAACTTA	TGTAAGGCGG	CTTTCTGTAA	TGGATAATAG
TAAAGATTC	TGTCTTGAAT	ACATTCCGCC	GAAAGACATT	ACCTATTATC
260	270	280	290	300
*	*	*	*	*
TAGGACTGCG	TTTTCTGATT	CGAATGACAT	CAGCGGAAGC	AGTAGTATAT
ATCCTGACGC	AAAAGACTAA	GCTTACTGTA	GTCGCCTTCG	TCATCATATA
310	320	330	340	350
*	*	*	*	*
GCTGCATCGG	CGGCGGCATG	ACTGAATTTT	TCTCGCCGGA	GACTTCGCCG
CGACGTAGCC	GCCGCCGTAC	TGACTTAAAA	AGAGCGGCCT	CTGAAGCGGC
360	370	380	390	400
*	*	*	*	*
GCGGAGATCA	CTTCACTGAA	ACGCCTATCG	GAAACACTGG	AATCTATCTT
CGCCTCTAGT	GAAGTGACTT	TGCGGATAGC	CTTTGTGACC	TTAGATAGAA
410	420	430	440	450
*	*	*	*	*
CGATGCGTCT	TTGCCGGAGT	TTGACTACTT	CGCCGACGCT	AAGCTTGTGG
GCTACGCAGA	AACGGCCTCA	AACTGATGAA	GCGGCTGCGA	TTCGAACACC
460	470	480	490	500
*	*	*	*	*
TTTCCGGCCC	GTGTAAGGAA	ATTCCGGTGC	ACCGGTGCAT	TTTGTCCGGC
AAAGGCCGGG	CACATTCTTT	TAAGGCCACG	TGGCCACGTA	AAACAGCCGC
510	520	530	540	550
*	*	*	*	*
AGGAGTCCGT	TCTTTAAGAA	TTTGTCTCTG	GGTAAAAAGG	AGAAGAATAG
TCCTCAGGCA	AGAAATTCTT	AAACAAGACG	CCATTTTTTC	TCTTCTTATC

Fig. 7A-1



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560 *	570 *	580 *	590 *	600 *
TAGTAAGGTG	GAATTGAAGG	AGGTGATGAA	AGAGCATGAG	GTGAGCTATG
ATCATTCAC	CTTAACCTTC	TCCACTACTT	TCTCGTACTC	CACTCGATAC
610 *	620 *	630 *	640 *	650 *
ATGCTGTAAT	GAGTGTATTG	GCTTATTTGT	ATAGTGGTAA	AGTTAGGCCT
TACGACATTA	CTCACATAAC	CGAATAAACA	TATCACCATT	TCAATCCGGA
660 *	670 *	680 *	690 *	700 *
TCACCTAAAG	ATGTGTGTGT	TTGTGTGGAC	AATGACTGCT	CTCATGTGGC
AGTGGATTTC	TACACACACA	AACACACCTG	TTACTGACGA	GAGTACACCG
710 *	720 *	730 *	740 *	750 *
TTGTAGGCCA	GCTGTGGCAT	TCCTGGTTGA	GGTTTTGTAC	ACATCATTTA
AACATCCGGT	CGACACCGTA	AGGACCAACT	CCAAAACATG	TGTAGTAAAT
760 *	770 *	780 *	790 *	800 *
CCTTTCAGAT	CTCTGAATTG	GTTGACAAGT	TTCAGAGACA	CCTACTGGAT
GGAAAGTCTA	GAGACTTAAC	CAACTGTTCA	AAGTCTCTGT	GGATGACCTA
810 *	820 *	830 *	840 *	850 *
ATTCTTGACA	AAACTGCAGC	AGACGATGTA	ATGATGGTTT	TATCTGTTGC
TAAGAAGTGT	TTTGACGTCG	TCTGCTACAT	TACTACCAAA	ATAGACAACG
860 *	870 *	880 *	890 *	900 *
AAACATTTGT	GGTAAAGCAT	GCGAGAGATT	GCTTTCAAGC	TGCATTGAGA
TTTGTAACA	CCATTTTCGTA	CGCTCTCTAA	CGAAAGTTTCG	ACGTAAGTCT
910 *	920 *	930 *	940 *	950 *
TTATTGTCAA	GTCTAATGTT	GATATCATAA	CCCTTGATAA	AGCCTTGCCCT
AATAACAGTT	CAGATTACAA	CTATAGTATT	GGGAAGTATT	TCGGAACGGA
960 *	970 *	980 *	990 *	1000 *
CATGACATTG	TAAAACAAAT	TACTGATTCA	CGAGCGGAAC	TTGGTCTACA
GTACTGTAAC	ATTTTGTTTA	ATGACTAAGT	GCTCGCCTTG	AACCAGATGT
1010 *	1020 *	1030 *	1040 *	1050 *
AGGGCCTGAA	AGCAACGGTT	TTCTTGATAA	ACATGTTAAG	AGGATACATA
TCCCGGACTT	TCGTTGCCAA	AAGGACTATT	TGTACAATTC	TCCTATGTAT
1060 *	1070 *	1080 *	1090 *	1100 *
GGGCATTGGA	TTCTGATGAT	GTTGAATTAC	TACAAATGTT	GCTAAGAGAG
CCCGTAACCT	AAGACTACTA	CAACTTAATG	ATGTTTACAA	CGATTCTCTC

Fig. 7A-2



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1110 *	1120 *	1130 *	1140 *	1150 *
GGGCATACTA CCCGTATGAT	CCCTAGATGA GGGATCTACT	TGCATATGCT ACGTATACGA	CTCCATTATG GAGGTAATAC	CTGTAGCGTA GACATCGCAT
1160 *	1170 *	1180 *	1190 *	1200 *
TTGCGATGCA AACGCTACGT	AAGACTACAG TTCTGATGTC	CAGAACTTCT GTCTTGAAGA	AGATCTTGCA TCTAGAACGT	CTTGCTGATA GAACGACTAT
1210 *	1220 *	1230 *	1240 *	1250 *
TTAATCATCA AATTAGTAGT	AAATTCAAGG TTTAAGTTCC	GGATACACGG CCTATGTGCC	TGCTGCATGT ACGACGTACA	TGCAGCCATG ACGTCCGTAC
1260 *	1270 *	1280 *	1290 *	1300 *
AGGAAAGAGC TCCTTTCTCG	CTAAAATTGT GATTTTAACA	AGTGTCCCTT TCACAGGGAA	TTAACCAAAG AATTGGTTTC	GAGCTAGACC CTCGATCTGG
1310 *	1320 *	1330 *	1340 *	1350 *
TTCTGATCTG AAGACTAGAC	ACATCCGATG TGTAGGCTAC	GAAGAAAAGC CTTCTTTTTCG	ACTTCAAATC TGAAGTTTAG	GCCAAGAGGC CGGTTCTCCG
1360 *	1370 *	1380 *	1390 *	1400 *
TCACTAGGCT AGTGATCCGA	TGTGGATTTC ACACCTAAAG	AGTAAGTCTC TCATTACAGAG	CGGAGGAAGG GCCTCCTTCC	AAAATCTGCT TTTTAGACGA
1410 *	1420 *	1430 *	1440 *	1450 *
TCGAATGATC AGCTTACTAG	GGTTATGCAT CCAATACGTA	TGAGATTCTG ACTCTAAGAC	GAGCAAGCAG CTCGTTCGTC	AAAGAAGAGA TTTCTTCTCT
1460 *	1470 *	1480 *	1490 *	1500 *
CCCTCTGCTA GGGAGACGAT	GGAGAAGCTT CCTCTTCGAA	CTGTATCTCT GACATAGAGA	TGCTATGGCA ACGATACCGT	GGCGATGATT CCGCTACTAA
1510 *	1520 *	1530 *	1540 *	1550 *
TGCGTATGAA ACGCATACTT	GCTGTTATAC CGACAATATG	CTTGAAAATA GAACTTTTAT	GAGTTGGCCT CTCAACCGGA	GGCTAAACTC CCGATTTGAG
1560 *	1570 *	1580 *	1590 *	1600 *
CTTTTTCCAA GAAAAAGGTT	TGGAAGCTAA ACCTTCGATT	AGTTGCAATG TCAACGTTAC	GACATTGCTC CTGTAACGAG	AAGTTGATGG TTCAACTACC
1610 *	1620 *	1630 *	1640 *	1650 *
CACTTCTGAG	TTCCCACTGG	CTAGCATCGG	CAAAAAGATG	GCTAATGCAC

Fig. 7A-3



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GTGAAGACTC	AAGGGTGACC	GATCGTAGCC	GTTTTTCTAC	CGATTACGTG
1660	1670	1680	1690	1700
*	*	*	*	*
AGAGGACAAC	AGTAGATTTG	AACGAGGCTC	CTTTCAAGAT	AAAAGAGGAG
TCTCCTGTTG	TCATCTAAAC	TTGCTCCGAG	GAAAGTTCTA	TTTTCTCCTC
1710	1720	1730	1740	1750
*	*	*	*	*
CACTTGAATC	GGCTTAGAGC	ACTCTCTAGA	ACTGTAGAAC	TTGGAAAACG
GTGAACTTAG	CCGAATCTCG	TGAGAGATCT	TGACATCTTG	AACCTTTTGC
1760	1770	1780	1790	1800
*	*	*	*	*
CTTCTTTCCA	CGTTGTTTCAG	AAGTTCTAAA	TAAGATCATG	GATGCTGATG
GAAGAAAGGT	GCAACAAGTC	TTCAAGATTT	ATTCTAGTAC	CTACGACTAC
1810	1820	1830	1840	1850
*	*	*	*	*
ACTTGTCTGA	GATAGCTTAC	ATGGGGAATG	ATACGGCAGA	AGAGCGTCAA
TGAACAGACT	CTATCGAATG	TACCCCTTAC	TATGCCGTCT	TCTCGCAGTT
1860	1870	1880	1890	1900
*	*	*	*	*
CTGAAGAAGC	AAAGGTACAT	GGAACCTCAA	GAAATTCTGA	CTAAAGCATT
GACTTCTTCG	TTTCCATGTA	CCTTGAAGTT	CTTTAAGACT	GATTTTCGTAA
1910	1920	1930	1940	1950
*	*	*	*	*
CACTGAGGAT	AAAGAAGAAT	ATGATAAGAC	TAACAACATC	TCCTCATCTT
GTGACTCCTA	TTTCTTCTTA	TACTATTCTG	ATTGTTGTAG	AGGAGTAGAA
1960	1970	1980	1990	2000
*	*	*	*	*
GTTCTCTTAC	ATCTAAGGGA	GTAGATAAGC	CCAATAAGCT	CCCTTTTAGG
CAAGGAGATG	TAGATTCCCT	CATCTATTCTG	GGTTATTCTGA	GGGAAAATCC
2010	2020	2030	2040	2050
*	*	*	*	*
AAATAGGTAA	TTGTATTAGG	ATATATGAGG	AAGAAGAGGA	TTTTCTTGTA
TTTATCCATT	AACATAATCC	TATATACTCC	TTCTTCTCCT	AAAAGAACAT
2060	2070	2080	2090	2100
*	*	*	*	*
ACATAGCACT	CTTTCCTTTC	ATCATTTGAT	ATGTCAACAT	ACATACAACA
TGTATCGTGA	GAAAGGAAAG	TAGTAAACTA	TACAGTTGTA	TGTATGTTGT
2110	2120	2130	2140	2150
*	*	*	*	*
GCTGTACCAT	AACTTGTAT	TGTTGCACTT	ACAACTTTGA	AGAACAGAAT
CGACATGGTA	TTTGAACATA	ACAACGTGAA	TGTTGAAACT	TCTTGTCTTA
2160	2170			
*	*			
TTATTTGAAA	AAAAAAAAAA	AA		
AATAAACTTT	TTTTTTTTTT	TT		

Fig. 7A-4



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```

* * * * * 50
MDNSRTAFSDSNDISGSSSICCIGGMTEFFSPETSPAETISLKRLETL
* * * * * 100
ESIFDASLPEFDYFADAKLVVSGPCKEIPVHRCILSARSPFFKNLFCGKK
* * * * * 150
EKNSSKVELKEVMKEHEVSYDAVMSVLAYLYSGKVRPSPKDVVCVDNDC
* * * * * 200
SHVACRPAVAFLVEVLYTSFTFQISELVDKFQRHLLDILDKTAADDVMMV
* * * * * 250
LSVANICGKACERLLSSCIEIIVKSNVDIITLDKALPHDIVKQITDSRAE
* * * * * 300
LGLQGPESENGFPDKHVKRIHRALDSDDVELLQMLLREGHTTLDDAYALHY
* * * * * 350
AVAYCDAKTTAELLDLALADINHQNSRGYTVLHVAAMRKEPKIVVSLTK
* * * * * 400
GARPSDLTSDGRKALQIAKRLTRLVDFSKSPEEGKSASNDRLCIEILEQA
* * * * * 450
ERRDPLLGEASVSLAMAGDDLRMKLLYLENRVGLAKLLFPMEAKVAMDIA
* * * * * 500
QVDGTSEFPLASIGKKMANAQRTTVDLNEAPFKIKEEHLNRLRALSRTVE
* * * * * 550
LGKRFFPRCSEVLNKIMDADDLSEIAYMGNDTAEERQLKKQRYMELQEIL
* * * * *
TKAFTEDKEEYDKTNNISSSCSSTSKGVDPKNKLPFRK
```

Fig. 7B



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Dosage effect of NPR1 on Psm ES4326 resistance

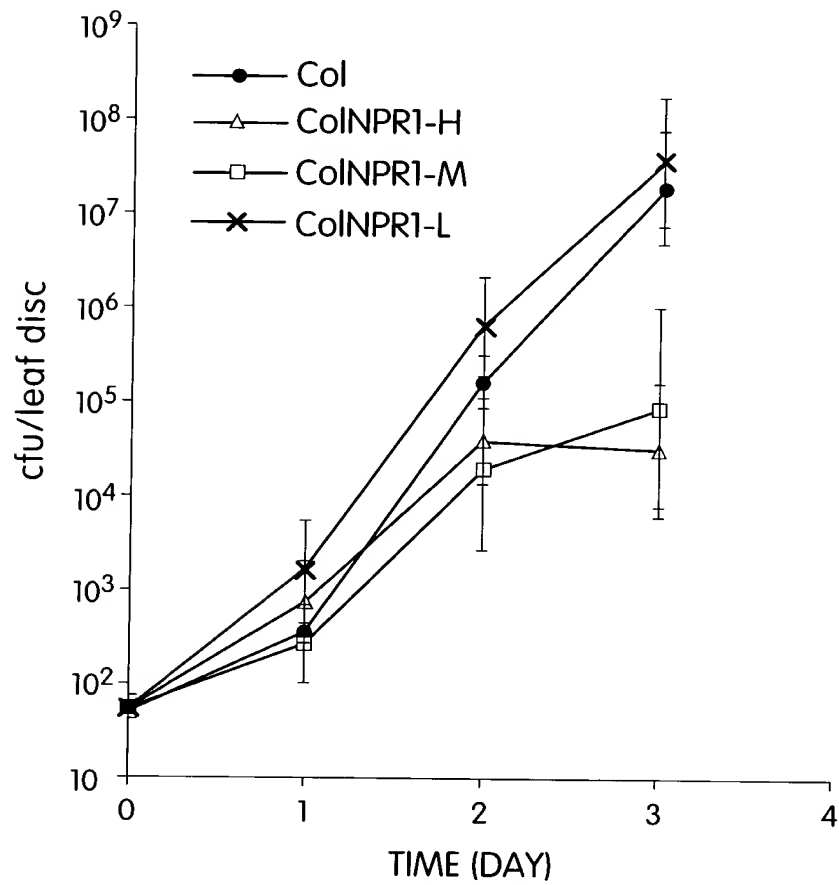


Fig. 8A



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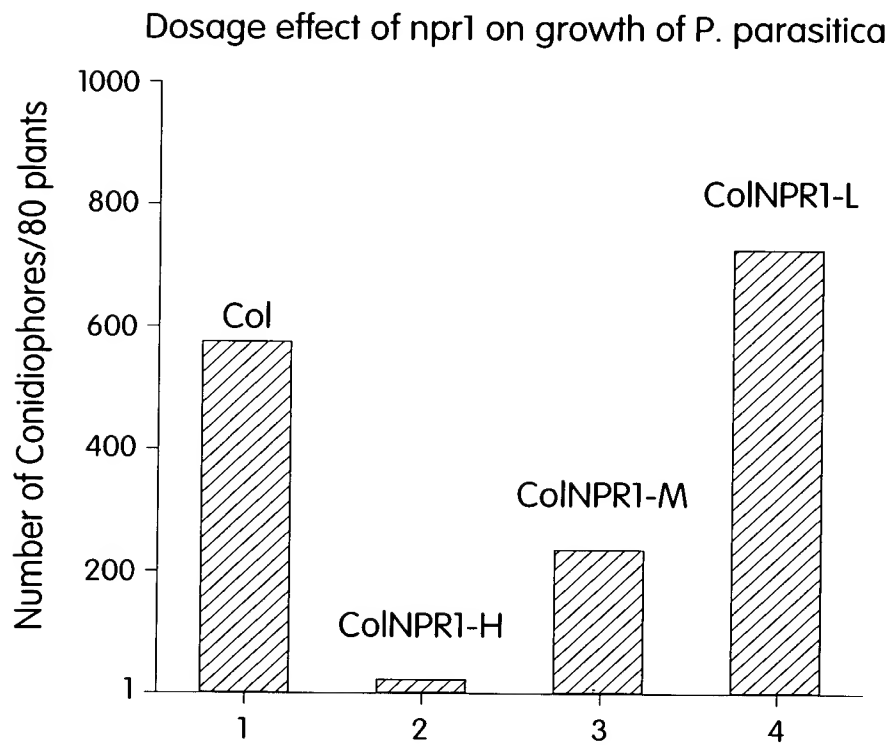


Fig. 8B



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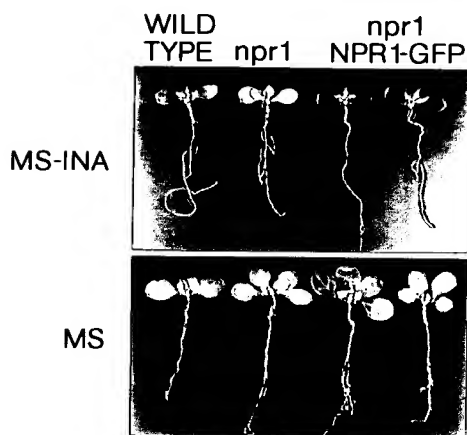


Fig. 9A

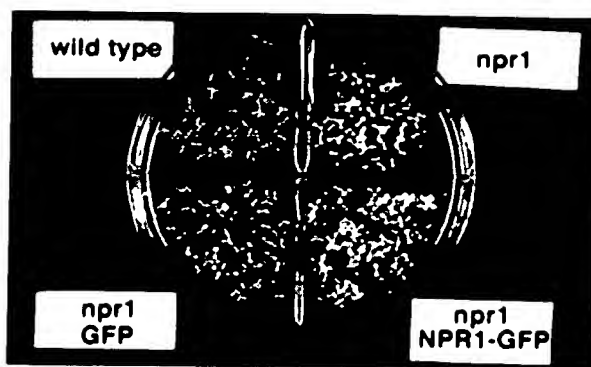


Fig. 9B



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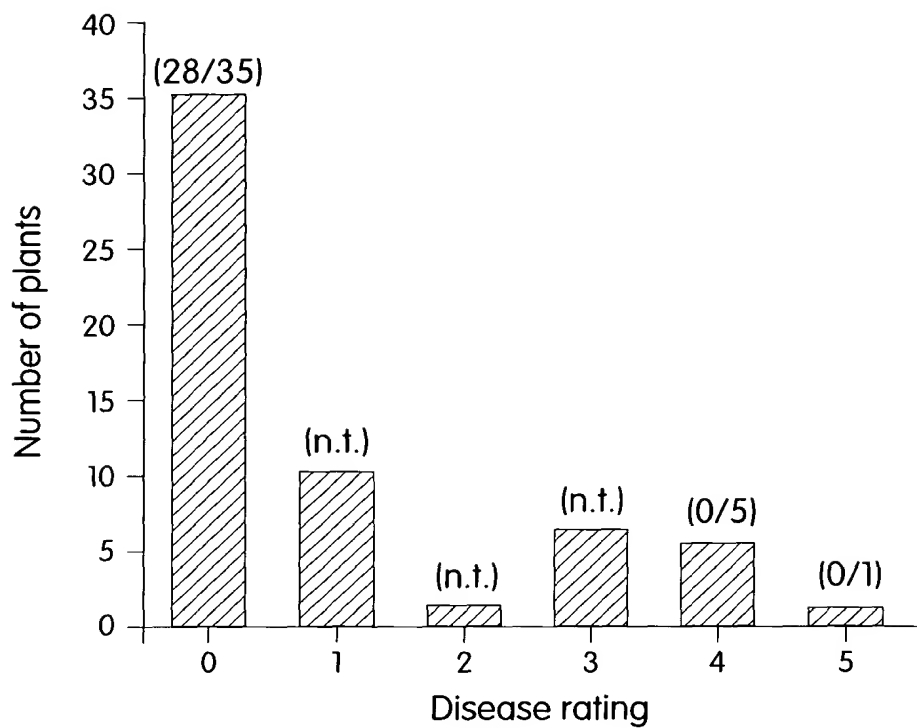


Fig. 9C



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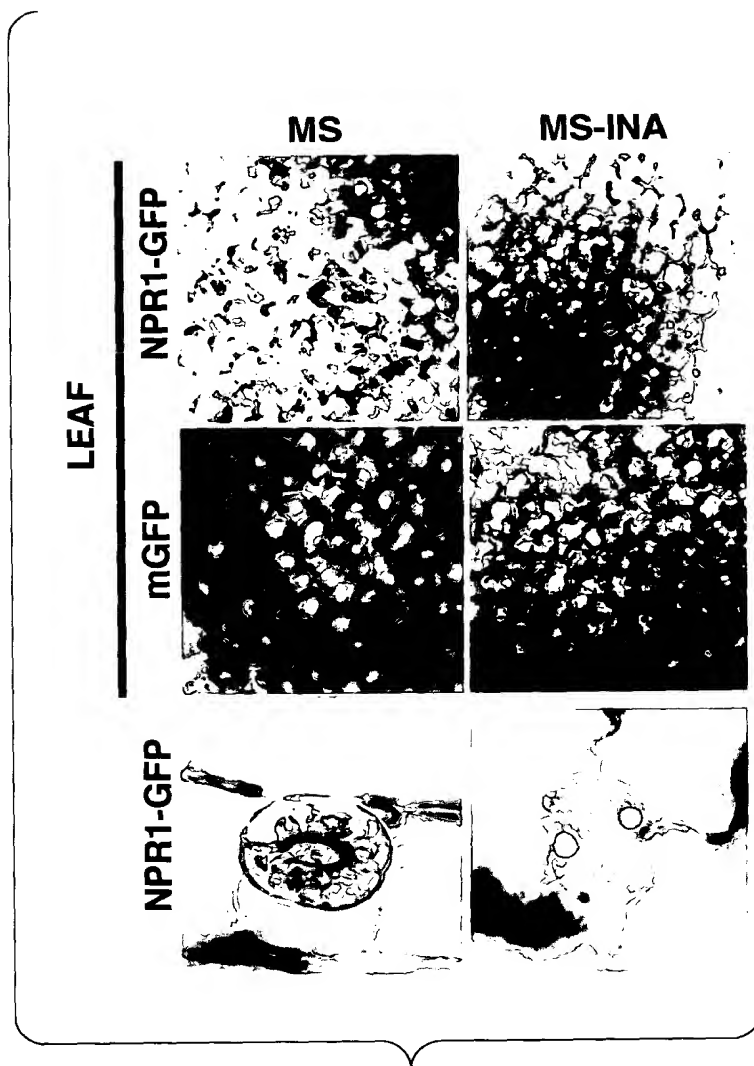


Fig 10



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Fig. 11A



Fig. 11B

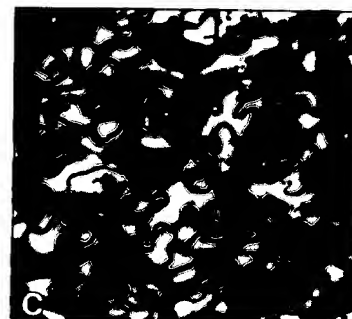


Fig. 11C



Fig. 11D



Fig. 11E



Fig. 11F

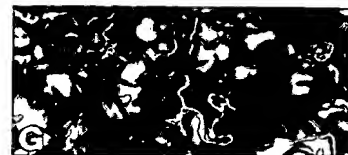


Fig. 11G